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THE COMPARATIVE BEHAVIOUR OF HAND-REARED SPECTACLED THRUSHES *Turdus nudigensis*

by Robin Restall

At the end of June 2008, the gardener brought me two nestling thrushes that had fallen from their nest in a tree he had bumped something against. One nestling was naked and its eyes were closed, the other had short quills which were just breaking at the ends and its eyes were half-open. The smaller nestling failed to survive but the second nestling was successfully hand-reared. A week after it had been released a worker at the museum here in Caracas, Venezuela, brought me two older young of the same species. These notes describe the differences in the way the first nestling and the second two birds behaved as they grew to independence.

The birds were Spectacled Thrushes (the species formerly named the Bare-eyed Thrush) *Turdus nudigensis*. It is our common garden thrush in Caracas and may be seen on lawns throughout the day searching for food, exactly like a European Blackbird *T. merula* or a North American Robin *T. migratorius*, and is about the same size as these two. Its alarm call is very like that of a European Blackbird and the song of the territorial male is like that of a young Blackbird that has not yet learned its full vocabulary. It differs significantly, however, in also making a penetrating "mewing" sound like that of the North American Catbird *Dumetella carolinensis*. Nestlings, or much more likely, first-day fledglings, are raised all over the city every year. People here are as incapable of leaving a baby bird on the ground - where it would be fed by its parents - as they are in Europe and North America. My neighbour hand-reared one last year and proudly released it when he thought it was ready - only to watch it fly across the garden and land on the lawn, where a cat dashed out from the shrubs, grabbed the bird and was off in a flash!

The first two nestlings were apparently a couple of days apart in age. The smaller nestling, that was naked and whose eyes were still closed, had a broken leg; furthermore, it was bleeding from the bill and vent and its faeces were black and very smelly. It died the same night. The surviving bird begged readily and was one of the easiest birds to feed that I have ever reared. I fed it on Kaytee Exact, a proprietary brand of rearing food for baby birds, which is made and sold in the USA. It is claimed to be a complete formula suitable for all kinds of birds. Various kinds of parrots are shown on the label and, I guess, they are the prime market it is aimed at. I have used the formula many times in the past and found it to be as good as the

manufacturer claims. I made it into a somewhat loose pulpy consistency by adding water to the dry mix and fed it to the baby thrush using the tip of the handle of a teaspoon. All orphans and birds requiring isolation are kept in my bathroom (having a separate bathroom from one's spouse is extraordinarily convenient, especially when rearing baby birds and other creatures). The bird seemed to recognise me when I entered the bathroom and would greet me with a "I'm hungry" call and would watch me as I prepared the food, and would instantly start begging as I approached it. At first it was kept in an open false nest with a half-cover, then the cover was left off and later an open shoebox lined with newspaper was used. Once the nestling reached the standing and moving around the box stage it would, regardless of whether or not it was hungry, squat lower and start wing-fluttering as I approached.

At about fledging time, it was moved into a roomy cage and placed on the outside windowsill opposite my drawing board and computer, where I sat and worked and the bird could see me come and go. It also watched my wife come and go and anybody else who was around, and either ignored them or watched them calmly. In contrast, I could tell by its change of posture, agitation and/or alertness that it clearly recognised me. It would call me with the "I'm here" location call, that presumably keeps parents aware of where their fledgling chicks are. The call would change to a more insistent "Feed me," if I had been away for a while, and then as I opened the cage door, it would switch to the familiar urgent begging noise.

I experimented with its diet and tried to modify it by adding a little crumbled yolk of hard-boiled egg, grated carrot, grated hard cheese, etc. As a young man I learned a great deal from Frank Meaden about hand-rearing birds and weaning them onto dry mixes, etc., and am always interested to see how birds respond to different types of food. In this case the bird's droppings always discouraged me from persisting with any variation to the diet. The commercial formula always resulted in clean, neat, black and white droppings, perfectly encased in transparent sacs. Any variation in the diet resulted in imperfect sacs or green in the droppings. At the time I was exchanging notes with Ian Hinze in the UK, who had recently reared a Blackbird. He had fed his bird with dog food. So, I experimented and tried dog biscuits and those for cats. I soaked them long enough to soften them and, at first, offered them on a spoon handle and then with my fingers. The bird was very picky, refusing the buffy-coloured ones for both dogs and cats and instead preferring the green ones and then the red ones.

The bird alternated between sitting quietly watching life in the garden, and exploring its cage, often pulling up the corners of the newspaper on the floor and pecking at whatever took its attention. One day I gave it a pot containing some mealworms. These it watched with hawk-like fascination

for quite some time. Then, after a while, it picked up one and stood there perfectly still - holding the mealworm in its bill. It hopped back down to the dish and took another and returned to the perch with it, then more rapidly hopped back down again and took a third mealworm. I could not contain myself (so much for the detached scientist) and told the bird to get on and eat them before they wriggled out of its bill and escaped. It took a fourth mealworm and then expertly swallowed all four in two gulps, without losing any. I soon began to feed it the pupae and beetles as well, which were all eaten. Its order of preference was: first mealworms, second the pupae and third the beetles.

One afternoon, another young thrush which was virtually identical to mine, except for fewer spots on the breast (and was therefore a few months older), flew to the cage and then into the room. I caught it and after examining it, wondered what the reaction might be were I to put it in the cage with my bird. I momentarily had dreams of keeping them with the view to attempting to breed them later this year. It went into the cage calmly and quietly, whereupon my bird attacked it furiously, refusing to let go of the wing it was biting viciously. I therefore caught the newcomer and immediately released it.

About three weeks after fledging my bird began singing. It was an extended, sweet, gurgling subsong, typical of many birds and reminded me of that of various young Jays *Garrulus glandarius* and Carrion Crows *Corvus corone* I had reared while living in Spain. I have a Chinese bird bath for thrushes. It is a modest-sized cage with a metal tray about 3cm (1¼in) deep, so in effect the whole cage is a bird bath. With the tray filled with water, it is attached to the bird's cage with the doors open so that the bird can pass from its cage into the bird bath. The Chinese train their birds to bathe by closing the door once the bird is in the bath cage, and then take the opportunity to clean its cage.

My bird happily went into the bath cage and would sit there looking around, but would then hop back into its cage and would sometimes go back and forth, but never once bathed. Six weeks after it arrived, the bird was released in an ideal habitat, a small cove on the coast. The next day I saw it there foraging by a stream that ran out of the wood and towards the beach.

The second two young were thought to have dropped, jumped or fallen from their nest in a garden, though my guess is that they had already fledged. My friend heard a tremendous commotion in the garden and went to investigate. The young thrushes were being barked at by two guard dogs which were in turn being dive-bombed by the young thrushes' parents, who were intent on protecting their offspring. The young thrushes found their way into my care, because it was believed they would not have survived the

attention of the dogs, or the cats in the next garden, were they to have been put over the wall into the next-door garden. They were the most vociferous and frightening young birds I have ever handled, keeping up a "yacking" thrush alarm call and rocketing off in any direction at the slightest noise or movement. The rescue scene must have been like bedlam. It had probably been unnecessary to rescue the birds. This thrush is very common and circumstances like these must be everyday occurrences all over the city suburbs. I suspect that had they been left alone, their constant barracking, combined with the attacks of the parents, would have deterred the dogs, and the youngsters would soon have found a safe location to sit and wait to be fed.

This time I fed the two young using a kind of syringe - a hand-feeder used by Japanese birdkeepers to rear baby Java Sparrows *Padda oryzivora*. It is not used like a normal syringe, but is loaded bit by bit by pushing food into the end that goes into the bird's mouth. I used this gadget because the birds would not stay still and would not gape. I had to force feed them for the first day, but by the middle of the second day, they recognised the syringe in my hand and readily gaped. Once their crops were full, they would sit quietly in the shoebox, but as soon as the food had been digested a little, although not enough for the birds to gape for more, they became as flighty and as noisy as before. They could fly quite well and would fly around the bathroom exploring. One would go off and a few minutes later the other would follow. They could reach the basin and a couple of days later could make it up onto the shower curtain rail. I used a small, mesh-covered carrying cage as their 'home,' and they immediately took to this. They would go off and explore, then stand quietly together behind the WC bowl for 10 minutes or so, before one would fly up to the carrying cage, go in through the opening and settle down inside. The other would soon fly up to join it and there they would wait, sitting side by side, until I arrived to feed them. I continued to use the syringe, which they accepted readily. One would often fly to me and land on my head, back or shoulder, and the other would follow and invariably land at my feet, and then jump up onto a foot.

A week or so after their arrival, I placed the two in the same cage the previous thrush had been so happy in, and again placed it on the outside windowsill. They immediately settled down in the cage and like the first thrush sat happily watching the world go by. One of the two would sit and sing the same extended, rambling, gurgling subsong, that the first bird had sang. For the first few days they continued to beg for food when I came by, but then after the first feed began to refuse any further food. They ceased to recognise me from afar and ignored me until I was close by. Although both birds continued to beg for food, within a day or two they began to refuse to

take it from the syringe. I therefore switched to using the tip of the teaspoon handle and they greedily took the food from this every time. I offered them small, cat biscuits, which I had soaked long enough to soften them. One would be taken from my fingers and greedily consumed, but when I offered a second, they would turn their heads away. Soon they would only snatch food from the side of the teaspoon handle and refused to take it directly. Judging by the length of their tails, they were at the stage at which the first bird continued to happily feed from the front of the spoon. I offered them mealworms and these were looked at, but not with the same fascination the first bird had shown. From then onwards I made the food more crumbly and placed it on a saucer and put the soaked cat biscuits in a small bowl. From then onwards they happily fed themselves and did not beg for food again. I again offered them mealworms. One of the two took one and sat on the perch almost motionless holding the mealworm in its bill. The other bird immediately began a high-intensity wing fluttering, pleading, pathetic sounding begging - with its bill open. Its sibling ignored it, bit the mealworm a couple of times and then swallowed it. During the following few days, they continued to feed from the bowls, but ignored the mealworms. One bird sat in the water bowl, attempting to bathe, and completely emptied the bowl in the process. They completely ignored the bath cage. They did not even enter it to explore it.

They were later transferred to a large flight cage in my birdroom/laboratory, where they became wild and independent almost immediately. They used the large bird bath hung on the cage door, ate the regular softbill mix and assorted soaked dog and cat biscuits, and quickly polished off a bowl of mealworms. It was only then that they began tearing up the newspaper on the cage floor, exploring or searching for insects. I was happy to release them soon afterwards in an orchard in the country.

Rearing two young birds together clearly worked much better, as they interacted with each other and their learning/exploring was obviously greater. What surprised me, however, was the way they 'trained me' to feed them, by progressively refusing and accepting food. Without having given it much thought before, I suppose I assumed that the parents did the weaning, but clearly the youngsters seemed to have their own in-built programming.

Avicultural Society Vice President Robin Restall painted the illustrations for and is one of the authors of Birds of Northern South America (reviewed in the Avicultural Magazine Vol.113, No.2, pp.89-90 (2007)). Robin resides in Caracas, Venezuela. E-mail: robinrestall@gmail.com

HAND-REARING WHITE-BROWED COUCALS

Centropus superciliosus

by Louise Peat

The Cuculiformes is a fascinating order that has two distinct families: Musophagidae (turacos) and Cuculidae (cuckoos). The subfamily Centropinae contains almost 30 species of coucals of which the White-browed species is the only representative in captivity in Europe according to the ISIS database (2008).

The White-browed Coucal occurs on Socotra Island and in south-west Arabia and has a wide distribution in Africa, from eastern Sudan, Ethiopia and Somalia, southwards through Uganda, Kenya and Tanzania, to Angola, Zambia, Malawi, Namibia, Botswana, Zimbabwe, Mozambique and South Africa. Clements (2007) listed four subspecies: *C. s. superciliosus*, *C. s. sokotrae*, *C. s. loandae* and *C. s. burchelli* (*fasciipygialis*), however, other recent authors (e.g. Sinclair & Ryan, 2003; Hockey, Dean & Ryan, 2005) treat the latter as a full species, which they call Burchell's Coucal *C. burchelli*.

The White-browed Coucal inhabits rank vegetation, thickets, bush and wooded grassland, often near water. It feeds mostly on grasshoppers, crickets, locusts and beetles, along with lizards, frogs, mice and young birds and eggs.

It is monogamous. The nest is a large and untidy domed structure with a side entrance. It is built of dry grasses and twigs and is usually lined with leaves. It is usually built in reeds, a bush or tree, especially one with tangles of creepers or thick foliage. Three to five white eggs are laid, which are incubated mainly by the male for a period of 14-15 days. If disturbed the chicks emit a foul-smelling black cloacae liquid (del Hoyo et al. 1997). They fledge at 18-20 days, at which point they are barely able to fly and mostly creep about waiting for their parents to feed them.

Here at the Cotswold Wildlife Park in Oxfordshire we first began working with the White-browed Coucal in 2004, following the arrival of six birds from Parc Paradisio, Belgium. Three went to Exmoor Zoo to set up a breeding pair there, with an unrelated pair and a female offspring being retained here. Our birds are housed in an aviary with two further representatives of the order Cuculiformes, the Guira Cuckoo *Guira guira* and the Roadrunner *Geococcyx californianus*. The three species cohabit peaceably and rarely interact with each other.

In 2005 we successfully hand-reared a White-browed Coucal, following which the parents went on to rear a further three young. Since then the parents have successfully reared a further nine young.

Early on in 2008 the breeding pair hatched several clutches of eggs, but only one chick survived. Due to the long list of collections that have expressed an interest in obtaining this species and the age of the breeding pair, we decided to intervene and maximise the number of young raised in 2008. Three clutches (a total of 16 eggs) were taken for artificial incubation. Fourteen of the eggs hatched.

Using information gained when we hand-reared the chick in 2005, e-mail information on coua rearing at Walsrode and the article in the *Avicultural Magazine* about the hand-rearing of this species at Exmoor Zoo (Gibson, 2007), I put together a hand-rearing protocol. Using further information gained during 2008, this has been tweaked here and there, resulting in the following revised protocol which is, I believe, comprehensive and easy to use.

Hand-rearing protocol

Hatch weight 6.7g-7.9g

Brooder temperature 35°C (95°F)

The chicks are kept hydrated by having distilled water from a syringe carefully dribbled onto their beaks. This is done every few hours during the first 24 hours. The water is generally lapped up by the chicks. They tend not to defecate during the first 24 hours. The chicks, which are blind and covered in white hair, are kept in small baskets with tissue substrate. They are generally alert and responsive to noise stimulation and touch. When touched they gape. Their movements are jerky.

Age 1 day

Average intake per feed 0.5g

Average growth rate 6.49%

During the early days the chicks are fed pinkie mice with the milk sac and all sharp bones removed, and waxworms with the head removed. Each item is placed in luke warm distilled water for a few seconds immediately prior to being dropped in the chick's mouth. One feed per day is dusted with Nutrobal (multivitamin powder). Chicks are fed only when they gape and never receive more than 10% of their morning body weight per feed (generally they receive far less). The amount of food is decreased or increased according to their daily weight gain which is carefully monitored. They receive six to seven feeds between 7.00am-10.00pm, being fed initially every two hours to two and a half hours.

Their hydration levels are monitored closely, with their faeces being a good indication. They should normally be enclosed in a faecal sac. If they are not, it may indicate that there is a problem. Raising the level of humidity in the brooder will encourage defecation.

Age 2 days

Average intake per feed 0.8g

Average growth rate 22.9%

Chicks should defecate after every other feed. If this does not occur, handling can induce defecation or stimulating the cloaca with a warm, damp cloth can be effective.

Age 3 days

Average intake per feed 1g

Average growth rate 24.32%

Age 4 days

Average intake per feed 1.5g

Average growth rate 29.87%

Slits of eyes should be apparent now.

Age 5 days

Brooder temperature reduced to 34°C (93.2°F)

Feeds reduced to every three hours

Average intake per feed 1.8g

Average growth rate 27.79%

Pin-feathers begin to protrude on edges of wings and those of the tail begin to appear.

Age 6 days

Average intake per feed 2g

Average growth rate 27.39%

From this point they tend to defecate after every feed.

Age 7 days

Average intake per feed 2g-2.5g

Average growth rate 20.54%

Pin-feathers appear along sides of torso.

Age 8 days

Average intake per feed 2.5g-3g

Average growth rate 20.5%

Age 9 days

Average intake per feed 3g

Average growth rate 17.31%

Age 10 days

Brooder temperature reduced to 32°C (89.6°F)

Average intake per feed up to 3.5g

Average growth rate 13.85%

Crickets with their legs, wings and head removed introduced into the diet.

Age 11 days

Average intake per feed 4g

Average growth rate 11.02%

By now the body should be covered with pin-feathers.

Age 12 days

Average growth rate 12.25%

Age 13 days

Brooder temperature reduced to 30°C (86°F)

Average growth rate 10.42%

Age 14 days

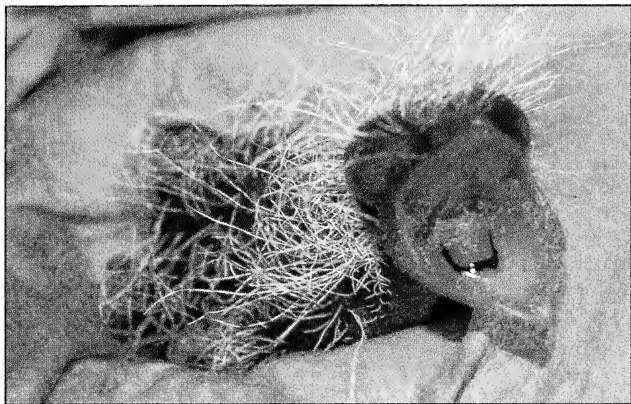
Average growth rate 8.27%

The feathers should be emerging from their sheaths and the young should be starting to explore their surroundings.



David Edgington

An adult White-browed Coucal photographed in the wild in Africa.



Louise Peat

Chick at about two to three days old.



Louise Peat

Aged sixteen days.

Age 15 days

Average intake per feed 5g

Average growth rate 8.73%

Beginning to make adult-like sounds.

Age 16 days

Average growth rate 8.05%

Brooder temperature reduced to 26°C (78.8°F)

Fully feathered.

Age 17 days

Average growth rate 4.92%

Food intake drops and their weight levels off as they get ready to start to fly.

As their feet develop and their grip gets stronger they should be attempting to perch.

Age 18 days

Average growth rate 3.33%

Generally able to perch from this point onwards.

Age 19 days

Average growth rate 3.33%

Attempt to fly.

Age 20 days

Average growth rate 0.84%

Room temperature 20°C (68°F)

Two to three feeds a day along with all-day access to the adult diet as the young are encouraged to feed themselves.

Notes on rearing

All of the chicks are kept in separate baskets to enable better individual monitoring and reduce the risk of them injuring each other at feeding time. From day 15 onwards, however, the chicks are placed together in a hospital cage. At this stage minimal aggression is observed (generally pre-feeding excitement only) and the chicks generally spend time in close proximity to each other. It is important though to always take care to place together birds that are of a similar age, otherwise the younger birds will tend to get trampled on by the older ones.

Initially, the chicks were weighed several times a day, but each time they were handled they became stressed and stopped feeding, therefore, they are weighed once a day only in the morning 10 minutes before the first feed. As the chicks grow older though, it is advisable to give them a general physical check each afternoon, which entails handling them for a second time each day. They develop rapidly and differences can be seen from feed to feed, with pin-feathers growing rapidly throughout the day. It is also important to check the development of the legs and toes. From day three the chicks should be pushing themselves up with their legs in order to reach the food and, if they are not doing this, it could indicate that there is a problem.

The chicks resort to a delightful olfactory defence mechanism when they are stressed - they produce smelly, runny, brown liquid faeces, after which

they are very subdued for a few minutes. The first time this happens it can be quite concerning. The first time it happened to me, I was certainly fooled into thinking that I had a very sick bird on my hands. One particularly nervous chick was an habitual offender. The slightest change in routine would upset it - even hearing a different voice in the room whilst it was being fed, would result in an odorous event!

If a chick is sluggish and unresponsive, it should be checked for bloating. This occurred quite early on with the chick which had the lowest hatch weight. It appeared very uncomfortable, was extremely bloated and quickly became unresponsive. Because we were worried that it might have an infection, we placed it on a four day course of 2.5% oral Baytril (one small drop on its food each day), which was followed by a five day course of probiotic. The chick responded slowly to treatment and eventually began feeding without assistance. Strangely, this chick lacked any black markings on its tongue (which the others had) and, in hindsight, I cannot help but wonder if this chick would have survived had it been in the care of its parents. Having made a full recovery following the treatment, it grew into a healthy looking character and thrived alongside its siblings.

Chicks should remain keen and eager to feed. Their appetites vary throughout the various developmental stages. They have the largest appetites when the feathers begin to emerge from their sheaths. As a general rule, once the birds weigh between 90g-100g (at 18-20 days), they become much more interested in their surroundings and are ready to fledge.

Summary of 2008 breeding results

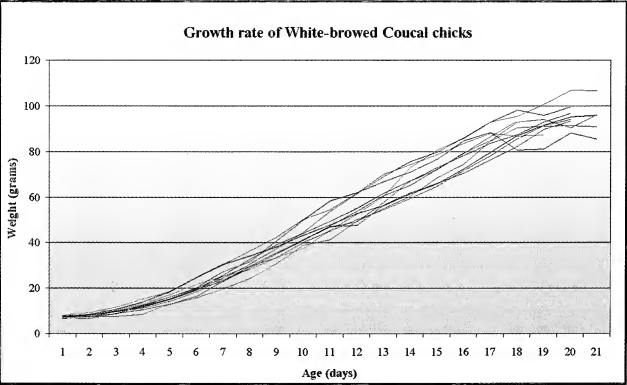
In total three clutches of eggs were taken. From the first clutch, six chicks hatched, two of which did not pass normal faecal sacs. These two chicks died in quick succession and without warning, one after passing a large quantity of faeces overnight. Both had been active and alert up until the point of death. The decision was taken to euthanase a third chick from the clutch. This chick hatched with an overshot lower mandible and as the bird grew, the left side of its body developed at a slower rate than the right side. Furthermore, from the day it hatched its left leg bone between the foot and ankle did not grow and its left eye began to bulge in the eye socket. I have never come across this before and would be interested to hear from anyone who may have an explanation for this condition.

Over the course of the year a total of 11 chicks were successfully reared, each one had a different character and varied needs. From mid-July until the end of October, my life revolved around these needy characters and at the end of the breeding season I found myself feeling a little lost.



Louise Peat

Fledged young coucal aged just over 20 days.



*Louise Peat*

Unlike the others, this chick lacked any black markings on its tongue. It was the chick with the lowest hatch weight and had some feeding and health problems. However it responded slowly to treatment and eventually began feeding without assistance.

*Louise Peat*

Its siblings all had black markings on their tongues like the bird above.

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CHESTER ZOO NEWS

In recent months Chester Zoo has acquired several new birds, including White-bellied Go-away Birds *Corythaixoides leucogaster* and Hamerkops *Scopus umbretta*. They will be among the many African species housed in the new Tsavo Bird Safari Walk-through Aviary that is due to be opened later this years.

Other new arrivals include Rufous-bellied Niltavas *Niltava sundara*, Collared Grosbeaks *Mycerobas affinis* and Black-and-white Laughing-thrushes *Garrulax bicolor*, for which zoo staff are to hold the studbook.

Chester Zoo continues to provide funding for wardens, the translocation of birds and education programmes for the Katala Foundation's Philippine Cockatoo Conservation Programme (PCCP), which is also supported by Loro Parque Foundation (LPF), CEPA (Conservation des Espèces et des Populations Animales (including ZooParc de Beauval)) and ZGAP (Zoological Society for the Conservation of Species and Populations). From a low of some 22-25 birds, the PCCP has through its efforts during its first 10 years, overseen a rise in the number of Philippine Cockatoos *Cacatua haematuropyia* on Rasa Island to, in 2008, an estimated 205 birds. Last year wardens monitored 32 nests, six of which were new, and 49 fledglings were ringed (banded).

Chester Zoo is also continuing to provide funding for work with the Visayan Writhe-billed or Rufous-headed Hornbill *Aceros waldeni* on the island of Panay.

THE UNUSUAL NESTING BEHAVIOUR OF A PAIR OF WHITE-BROWED COUCALS *Centropus superciliosus* AT EXMOOR ZOO

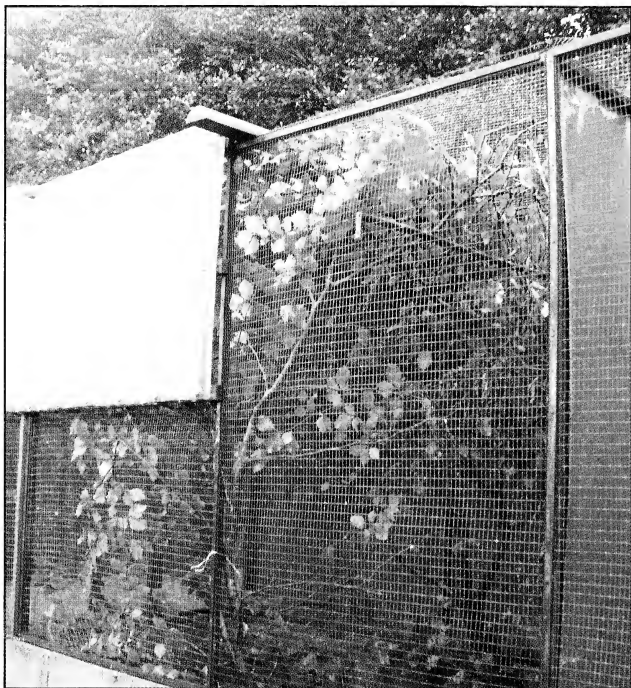
by Derek Gibson

Readers of the magazine may recall that in the *Avicultural Magazine* Vol.112, No.2, pp.49-52 (2006) & Vol.113, No.4, pp.166 -169 (2007), I described various aspects of the husbandry of this species here at Exmoor Zoo. In the following notes I concentrate on various aspects of the White-browed Coucal's nesting behaviour here at Exmoor. The zoo now houses two adult pairs, one on display and the other off display. The latter pair are the subject of this account.

Both birds were obtained from private collections, the female on November 13th 2005 when she was about four years of age and the male on February 24th 2008. He was hatched on June 1st 2007. On March 1st 2008, after a period of quarantine, both birds were placed in an aviary measuring 8ft long x 6ft wide x 8ft high (approx. 2.4m long x 1.8m wide x 2.4m high), with three-quarters of the roof covered to give protection from the more inclement north Devon weather, but with no heating provided. There are no plants growing in the aviary, but it is densely perched with branches of willow *Salix* sp., Beech *Fagus sylvatica* and Ash *Fraxinus excelsior*. The male was placed in the aviary first and was joined by the female two days later. She had in the past been a rather bullish bird and had not tolerated any other bird in her aviary.

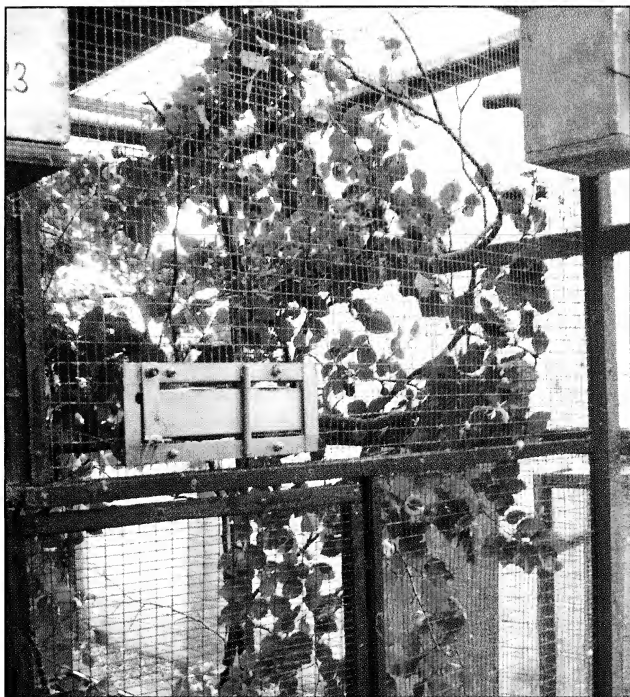
An 8in x 8in x 6in high (approx. 20.5cm x 20.5cm x 15.5cm high) nest basket is positioned 1ft (30.5cm) below the roof of the aviary. There is also a standard design parrot nest box measuring 6in x 6in x 1ft high (15.5cm x 15.5cm x 30.5cm high), with a 1in (2.5cm) deep covering of wood chips on the bottom and with a 2½in (6.5cm) diameter entrance hole. At the beginning of August it was noticed that the female was spending time inside the nest box, normally in the morning when the aviary was being serviced by the keeper. She was occasionally joined inside the box by the male.

In the wild this species is recorded as making a large, bulky and untidy domed nest, with a side entrance. It is built of twigs and grass, sometimes of grass alone, with the inside, which lacks a distinctive cup, lined with leaves (Payne et al. 2005). With our second pair here at Exmoor (the subject of this account) the open nest basket was, so far as we know, never inspected and certainly no nesting material was ever placed in it. Nor was any nesting material taken into the nest box, though there was plenty of material available on the floor of the aviary, should the pair wished to have used it.

*Derek Gibson*

Aviary housing pair of White-browed Coucals.

On August 2nd 2008, the female was once again inside the nest box and, this time, appeared for only a minute or two before making her way back inside the box. As with a great many species, the White-browed Coucal does not seem to tolerate human inspection of its nest site. We were keen, however, to know what was going on inside the box, so, the decision was taken that when an opportunity occurred, a brief inspection of the inside of the box would take place. When this happened, much to our surprise, three white eggs were found in the box. Over the following 10 days the female was seen outside the nest box on only a few occasions and, at no time, was the male seen to enter the nest box. On August 17th, when the nest box was inspected again, the three eggs were still there, but as they had gone over the incubation period, all three were removed and candled and, unfortunately,



Derek Gibson

Parrot nest box in top right-hand corner of aviary.

all found to be clear. It was the first time this female had laid and, given the young age of the male, we looked forward to the pair, hopefully, reproducing in 2009. However, a second clutch of eggs was laid in the nest box. These were incubated but like those of the first clutch proved to be clear.

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THE SOCIETY'S VISIT TO BERLIN

by Nigel Hewston

Twenty-six members of the Avicultural Society and their guests travelled to Berlin on September 26th 2008 and enjoyed an extremely interesting and enjoyable weekend visiting the city's two great zoos. The weekend was greatly enhanced by the very generous hospitality with which we were greeted at both zoos. Our host and guide for the weekend was Dr Wolfgang Grummt, former Director of Tierpark Berlin, who kindly arranged for us to meet and be guided by Assistant Curator, Birds, Dr Martin Kaiser at Tierpark Berlin and, at Zoo Berlin, by Curator Heiner Klös, who is responsible for the carnivores, nocturnal animals, primates, bears, seals and penguins.

We arrived on Friday from various UK airports and used Berlin's excellent public transport system to make our way by train and tram to our base at the Abacus Tierpark Hotel, just opposite Tierpark Berlin in the east of the city, where despite the late arrival of the bulk of the party, we were met with a warm welcome and a welcome hot meal. Thus fortified and refreshed with a pilsner or two, we were ready for sleep, in preparation for a full day at Tierpark Berlin on Saturday.

The size of the zoo surprised those (most) of us who had not visited it before. One of the largest in Europe, it is set in a wooded park with many large enclosures for hoofstock and other mammals. There are breeding herds of both African Elephant *Loxodonta africana* and Asian Elephants *Elephas maximus*, which have as the centrepiece of their indoor quarters a large tank housing an active group of Caribbean Manatees *Trichechus m. manatus*.

The bird collection is large and varied. Pelicans are a feature, with large numbers of several species. Pelicans breed regularly at Tierpark Berlin, usually indoors in the winter quarters (as seems to generally be the case with these birds in northern Europe). They are free to roam about the tierpark and make a striking, if incongruous, display among the formal flowerbeds. Waterfowl are well represented, with Flying Steamer Ducks *Tachyeres patachonicus* and breeding Chinese Mergansers *Mergus squamatus* standing out as new species for me. Large domed aviaries also house gulls, shorebirds, ibises and other wetland and marine birds. I particularly enjoyed seeing the breeding colony of Little Pied Cormorants *Phalacrocorax melanoleucus*.

Tropical species are housed in the Alfred Brehm Cat House in individual aviaries and a large 1,100sq m (approx. 12,000sq ft) walk-through enclosure. Groups represented and, mostly breeding, in the smaller aviaries include hornbills, barbets, bulbuls, babblers and roadrunners. In the walk-through are ovenbirds *Furnarius* sp. with their mud nests built onto the framework

of the enclosure, barbets, turacos, African Jaçanas *Actophilornis africana* - incubating at the time of our visit - Freckled Duck *Stictonetta naevosa* and other waterfowl. Also, African starlings and a number of pigeon species. The birds share their habitat with fruit bats.

Birds of prey are something of a speciality, with a varied collection of owls and several species of eagles, including the massive Steller's Sea Eagle *Haliaeetus pelagicus* and Harpy Eagle *Harpia harpyja*. Vultures are housed in a huge aviary which is large enough to allow the smaller species to soar when weather conditions are suitable and has a cliff face at the back.

We enjoyed a very good lunch at the restaurant (which also houses the aquarium) at the kind invitation of Dr Bernhard Blaszkiewicz who, after having been Director of Tierpark Berlin since the 1990s, has more recently become the first Director of both the city's zoos, which are now managed as one collection.

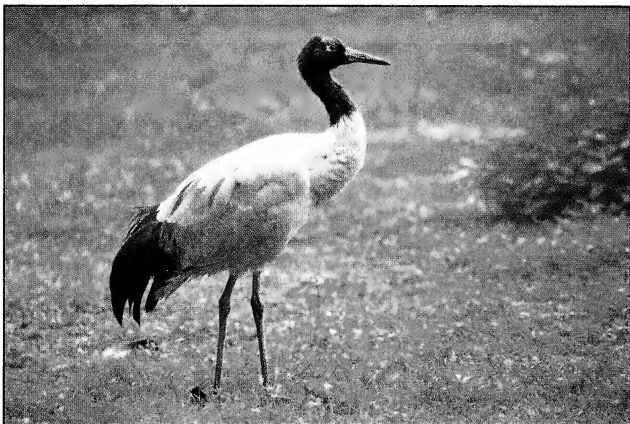
After lunch we continued our tour, one of the highlights of which for me was the pheasantry, which houses not only a nice collection of pheasants, but alongside them a range of laughingthrushes and liocichlas, a number of which are breeding there. Tierpark Berlin is one of the few European zoos to regularly breed the threatened Omei Shan Liocichla *Liocichla omeiensis*. We were shown a male which was still breeding successfully at 20 years of age.

Neotropical birds are housed in a section of the walk-through crocodile house which houses tortoises and terrapins. There we found a range of tanagers, breeding Red-headed Marshbirds *Amblyramphus holosericeus* and Sunbitterns *Eurypyga helias* feeding a chick. Hummingbirds have also bred in this house in the past.

Cranes are well represented and it was a treat to see Siberian Cranes *Grus leucogeranus* calling and displaying. They breed regularly there, but artificial insemination has proved necessary to obtain fertile eggs. In the off-show aviaries we saw young birds, including young cranes, storks and Goliath Heron *Ardea goliath*, as well as many waterfowl and other species, along with extra breeding pairs of softbills and other birds to supplement those on display to visitors.

Despite spending the whole day at the zoo, I doubt whether any of us saw all of it. I certainly did not. Dr and Frau Grummt joined us for dinner and the next morning Dr Grummt led us across the city to Zoo Berlin. This is one of the oldest zoos in Europe, with many historic buildings alongside state of the art modern exhibits. Heiner, who is the son of former Director Prof. Dr Heinz-George Klös, was just the person to provide us with an historical perspective, as well as an insight into the latest developments.

Among these is the hippopotamus house, where we were privileged to



© Joe Blossom

Black-necked Crane *Grus nigricollis* at Tierpark Berlin.



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Oriental White Stork *Ciconia boyciana* also at Tierpark Berlin.



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Steller's Sea Eagle at Tierpark Berlin.



© Joe Blossom

Both zoos have Dalmatian Pelicans *Pelicanus crispus*.

be taken for a look behind the scenes. The house houses both the large and pygmy hippos, *Hippopotamus amphibius* and *Hexaprotodon liberiensis* and African waterfowl, including Hartlaub's Duck *Pteronetta hartlaubi*. Although we were all obviously interested in the bird collection, like the tierpark the zoo is packed with other delights. Those in our party who know about these matters found the small cats and the way they are exhibited very special and, the nocturnal house, was excellent, with very active Aardvarks *Orycteropus afer* the highlight (or twilight?) for me. The aquarium is a large, apparently historic building with three floors (it was rebuilt after the Second World War, during which much of the zoo was destroyed and the collection reduced from 4,000 to just 91 specimens). The life-size dinosaur at its entrance was engulfed by wild Red Squirrels *Sciurus vulgaris* playing on its tail. Inside the aquarium, the ground floor is given over to an extensive series of geographical tropical marine exhibits, in which the coral is as impressive as the fish. Other exhibits include some very large sharks, rays and morays. Reptiles are housed on the first floor and amphibians and invertebrates on the second floor.

The bird facilities include a number of large aviaries housing waterfowl, storks, ibises, vultures and birds of prey and there are enclosures for cranes and pelicans. There is also a refrigerated penguin exhibit and a large corner of the zoo is given over to more traditional houses and aviaries housing a wide range of birds. The pheasantry is a long house containing much more than pheasants - we also saw Kagu *Rhynochetos jubatus*, a Trumpet Manucode *Manucodia keraudrenii*, which obligingly called and displayed, Channel-billed Cuckoos *Scythrops novaehollandiae* (the world's largest parasitic cuckoo), waders, weaver colonies, White-backed Australian Magpies *Gymnorhina tibicen hypoleuca*, curassows, Pied Egrets *Egretta plicata* and many more unusual species. This building also houses North Island Brown Kiwis *Apteryx australis mantelli* which, unsurprisingly at midday, we were not lucky enough to see. Zoo Berlin is one of the few institutions outside New Zealand which regularly breeds kiwis. At the end of this range of aviaries is a wader and seabird exhibit with a wave machine. Next to this aviary are the zoo's Andean Flamingos *Phoenicoparrus andinus* and James's *P. jamesi*. Although their relatively small enclosure with its small number of flamingos is not necessarily the sort of set up one would recommend for breeding flamingos, the zoo has been repeatedly successful with these two difficult species, both of which were feeding healthy chicks at the time of our visit.

The unimposing entrance to the nearby tropical bird house, made the further surprises and delights we found inside all the more impressive. The house has a large number of aviaries housing single species or small

communities. Most are linked to outdoor flights and there are also smaller indoor enclosures for more delicate softbills, some practical cages for African and Australian finches, as well as a large central aviary. The path leads on into a south-east Asian walk-through, which houses Lesser Malayan Chevrotain or Mouse Deer *Tragulus javanicus*, as well as a wide range of softbills, pigeons and other birds. There is then a smaller African walk-through with a linked outdoor aviary. There is also a series of indoor/outdoor hornbill aviaries. Another door leads directly into the parrot house, which again has a large number of indoor and indoor/outdoor enclosures in which, despite a very obvious mouse problem, the large and varied collection looked very well and happy.

On the Monday morning we were free to revisit the zoos or explore the city, before meeting up at the airport and comparing notes. We had expected large and interesting zoos, but the size and variety of the bird collections at both zoos had taken many of us by surprise. The city must be unique in that history has presented it with not one but two world-class zoos. I must mention again the warm hospitality we received, which added so much to our enjoyment of the weekend. Special thanks must go to Dr Grummt, who spent two whole days and evenings with us (I hope I have his energy when I am in my eighties!). We were given admission and guidebooks to both zoos, lunch at the tierpark, were guided by senior staff, and really could not have been looked after better.

Thanks are also due to Mike Curzon and Christopher Marler for arranging another superb weekend. This was my third Avicultural Society European weekend. On each trip I have enjoyed great company, and am very much looking forward to our next trip.

* * *

THE AGE OF THE SUPERZOO

Chester Zoo recently unveiled a £225 million (approx. US\$320 million) expansion plan, which it was reported "could usher in the age of the superzoo." An enormous biodome, which will cost £90 million (approx. US\$128 million) to construct, will house animals of the African rainforest, including a wide variety of birds, along with Gorillas *Gorilla gorilla*. Chimpanzees *Pan troglodytes*, Okapi *Okapia johnsoni*, amphibians, reptiles, fishes and invertebrates. The zoo which has 1.3 million visitors a year, more than any other zoo in the UK, will seek planning permission for the first phase later this year and is hopeful that the project will be completed by 2018. For further information visit: www.chesterzoo.org

THE PARENT-REARING OF HOODED PITTA CHICKS *Pitta sordida mulleri* IN A MIXED SPECIES WALK-THROUGH EXHIBIT AT ZSL LONDON ZOO

by Nicholas Ackroyd

Abstract

In 2008 two Hooded Pitta chicks *Pitta sordida mulleri* were successfully parent-reared in the recently refurbished Blackburn Pavilion tropical bird house at ZSL London Zoo. A key factor in the success was the species-specific feeding system. This provided an almost unlimited supply of earthworms and other rearing food to the parent birds even when the keeping staff were not present. The pair successfully incubated the eggs and reared the chicks to independence despite being on show to the public in the newly planted mixed species exhibit.

In the wild

The Hooded Pitta is widely distributed from northern India, across and down through south-east Asia. According to Erritzoe & Erritzoe (1998) it found in India, Bangladesh, Myanmar (Burma), Thailand, Laos, Kampuchea, Vietnam, China, the Nicobar Islands to Sumatra, Borneo, Java, Sulawesi, New Guinea, the Bismarck and Sulu Archipelagos and the Philippines. They listed 13 subspecies, while Clements (2007) listed 12, with *P. s. mulleri* occurring in extreme southern Thailand, the northern Malay Peninsula, Greater Sunda Islands and west Sulu Island.

They are generally encountered in forested and woodland habitats, including overgrown plantations, orchards and scrub, up to an altitude of about 2,000m (6,500ft).

This pitta measures approximately 16cm-19cm (6½in-7½in) in length. It is a predominantly green bird with a black head and beak (some subspecies, though not *P. s. mulleri*, have a dark/chocolate brown crown). The upper wing-coverts, lower rump and upper tail-coverts are azure blue and it has a white wing patch that is visible when it flies and displays. Its upper belly and tail are black, the latter broadly or narrowly tipped with blue or wholly black (Erritzoe & Erritzoe, 1998), and its lower belly and under tail-coverts are bright red.

In the wild the Hooded Pitta's diet includes invertebrates, such as ants, beetles, earthworms, snails, etc., and invertebrate larvae. It may also feed on fallen fruits and berries, which it finds on the ground.

When nesting in the wild, both adults build the ball-shaped nest of loosely woven bamboo leaves, roots and grass, which is then lined with

softer material. The nest is constructed on the ground in thick cover. There may be a flattened pathway in front of the nest.

Housing at ZSL London Zoo

The breeding pair of DNA sexed Hooded Pittas arrived at the zoo in 2006. Both birds were captive-bred at Burgers' Zoo in the Netherlands. The male hatched there on August 17th 2005 and the female on July 8th 2006. Both were parent-reared.

The pair bred at ZSL London Zoo in the recently refurbished Blackburn Pavilion tropical bird house, in a mixed species large walk-through exhibit. The enclosure is approximately 50m long x 20m wide x 7m high (roughly 164ft long x 65ft wide x 22ft high). It houses more than 50 birds of over 20 different species. The Blackburn Pavilion is heavily planted and has overhead sprinklers, which provide misting and daily rain showers. A large central pool and waterfall provide drinking and bathing water for the birds.

Feeding

In such a large mixed species exhibit it is difficult to quantify exactly what each species eats. Food dishes, which include in them the ZSL fish mix and egg mix, chopped fruit and pulses, are distributed throughout the enclosure and the pittas had access to all of these foods. In addition, they would readily take livefood during the scatter feeds, which are given three or four times a day.

Diary of events

August 27th	The pair was seen mating and nest building.
August 30th	Both birds were seen sitting in the nest. In order to avoid disturbance the nest was not checked.
September 1st	Four eggs were seen in the nest.
September 14th	The parents were observed carrying food to the nest, so it was assumed that chicks had hatched.
September 15th	Two chicks and one unhatched egg were seen in the nest.

Species-specific feeding system and target feeding

Due to competition from other species in the enclosure, keepers felt that the adult pittas would not find enough livefood to sustain their developing chicks. To resolve this problem, approximately one week prior to the chicks hatching, a livefood feeding system and a target feeding programme were established in the enclosure. Buckets approximately 25cm (10in) in diameter and 25cm (10in) deep were sunk into the ground at points where

the pittas were often seen foraging. The lips of the buckets were level with the substrate and a small amount of substrate (less than 1 cm (or ½in) deep) was placed in the bottom of the buckets. In the week leading up to the date of hatching, the pittas were fed a large number of live *dendrobaena* worms in the buckets, as well as being target fed chopped pinkie mice and other livefood in and around the buckets. This encouraged the pittas to identify the buckets as sources of food.

Although they were initially hesitant about jumping down into the buckets, within days they were using them regularly. Other species would not enter the buckets, although Montserrat Orioles *Icterus oberi* and Crested Wood Partridges *Rollulus rouloul* would occasionally follow the pittas to the buckets and steal the food that the pittas carried out. If this happened, the pittas would immediately jump back down into the bucket to get more food. The buckets could be loaded with worms in the evening to supply livefood throughout the night and early morning. During the day keepers could, in addition, target feed the two adults with livefood.

This system of livefood feeders and target feeding ensured the adult pittas had a ready supply of livefood both when keeping staff were present and, more importantly, when they were not.

Rearing

The parents were first observed carrying food to the nest site on September 14th 2008, so this is assumed to have been the day the chicks hatched. Due to unsuccessful previous breeding attempts, no attempt was made to check the number of chicks in the nest. However, the following day (day one), two chicks were seen at the mouth of the nest, when the parents left the nest to forage.

On these two days the parents were not often seen feeding the chicks, but by day three the male was doing nearly all the feeding. He would jump down into one of the livefood buckets, catch a worm, which he would hop out with and then spend an extended period of time breaking up the worm into small pieces. During the initial stages earthworms were the preferred food fed to the chicks. The earthworms were not gut-loaded and this appeared to have little effect of the development of the chicks. Gut-loaded mealworms were offered four to five times per day. Both adults would also readily take crickets and pinkie mice when these were target fed to them. Keepers believe that the varied livefood diet aided the chicks' digestion and helped prevent gut impaction. The consistency and frequency of the faecal sacs produced by the chicks throughout the rearing, were good indications that they had no digestive problems.

During this time, bouts of feeding were followed by extended periods

*Paul Atkin*

Both parents in the nest on September 15th, approximately one day after the chicks hatched. It is unclear whether one or both parents are brooding them.

*Paul Atkin*

Chick aged approximately seven days old. The second chick is hidden behind it.



Paul Atkin

Male carrying food back to the chicks in the nest, approximately four days after they hatched.



Paul Atkin

Young pitta approximately 16 days old. It had fledged the previous day.

when the chicks were brooded, often with both parents in the nest. The female began foraging day three after the chicks hatched, but was not observed feeding the chicks until the afternoon of day four. During these early days, when out of the nest, the female spent much of her time foraging for food for herself, bathing, preening and gathering nest material.

Closer to the fledging date, both parents were seen regularly feeding the chicks larger meals, although at a lower frequency than during the first seven days. Earthworms remained the livefood of choice. The parents varied the chicks' diet with mealworms and crickets when they were target fed these items. Faecal sacs were produced regularly and were removed from the nest by the parents, who concealed them in the grating of the drain at the exit of the enclosure.

Fledging

The time of hatching to fledging for the Hooded Pitta is 16 days, which gave us an estimated fledging date of September 29th. On September 27th, an estimated 13 days after the chicks had hatched, they were seen moving in the nest. They fledged at approximately 8.30am on the following day (September 28th).

A member of staff (out of uniform) remained in the aviary for much of the day. They noted the position of the young pittas and feeding carried out by the parents, both of which fed the young frequently. The male was heard calling during the afternoon and showed far more aggression towards other species in the exhibit. He was observed making aggressive flights at the Sunbitterns *Eurypyga helias*, Montserrat Orioles and Blue-bellied Rollers *Coracias cyanogaster*. The female pitta was not as aggressive and spent the majority of her time feeding the young.

The parents continued to use the feeding buckets, which were topped up three times a day and in which ample food was left overnight.

Independence

The young were first seen taking livefood themselves on September 30th, 16 days after they had hatched. However, they were not seen using the food dishes in the aviary. The young pittas became very interested in the keeping staff whenever they entered the aviary with buckets. They would come to the keepers during livefood feeds and try to take food from the hand, although this was discouraged.

The adult pair began nest building again on September 29th, the day after the chicks fledged. The female had laid four eggs by October 11th, when she was found dead in the enclosure. The eggs were removed from the nest and artificially incubated. Three chicks hatched successfully, but

did not survive past the third day of hand-rearing.

The earlier young were DNA sexed, ringed (banded) and wormed on October 2nd 2008. About December 10th the adult male became aggressive and began chasing the youngsters. One spent more time around him and was consequently chased more often. To save the youngster from the male's aggression, it was moved to a holding enclosure, but quickly lost condition and died.

The second youngster (like the first a female) was later moved to another holding enclosure with an unrelated male and is currently (March 2009) doing well.

Conclusions

Keeping staff believe that the bucket livefood feeders were very important to the success of the parent-rearing process. The constant supply of livefood allowed the parents to feed the young at liberty throughout the day. Although quick to find and eat food, the pittas would otherwise have been unable to compete with many of the other species in the mixed exhibit. We believe this method of livefood feeding tailored to the pitta's method of foraging, allowed the parents to get enough livefood to successfully rear their young. The method of targeted livefood feeding could, we believe, be applied to other species kept in mixed exhibits. By finding ways of supplying specific species with extra livefood when they are rearing young, it should be possible to increase the number of young successfully reared by their parents in mixed exhibits.

Minimal disturbance of nesting birds is, of course, advisable although not always possible, particularly in collections open to the public. However, the breeding pair of pittas seemed comfortable with keepers and members of the public around. Monitoring of the nest to record developments is a useful tool and keepers should use their judgement regarding how much disturbance the birds will safely tolerate. Determining accurate hatching dates in a mixed exhibit enables the livefood systems to be brought into play and the birds to become accustomed to them before the chicks hatch.

With more collections keeping species in mixed exhibits, it is important to increase breeding success in this style of enclosure. The Hooded Pitta has been upgraded recently to a European Studbook (ESB) monitored species. It is possible that the number of young successfully reared to independence could be increased by the targeted feeding of livefood and other rearing foods to breeding pairs. This would help achieve the studbook aim of creating a stable, self-sustaining, European captive population.



Paul Atkin

Pitta approaching one of the feeding buckets.

Acknowledgements

Thanks to Curator John Ellis, Mick Tiley, Adrian Walls, Paul Atkin and all other staff and volunteers on the ZSL London Zoo bird section for their assistance with the rearing and documentation of this breeding.

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Following the author's decision to return to New Zealand, any enquiries about the breeding should be addressed to Adrian Walls or Paul Atkin. E-mail: adrian.walls@zsl.org or paul.atkin@zsl.org

The above breeding account (or a similar version of it) will be published in Ratel, the journal of the Association of British and Irish Wild Animal Keepers (ABWAK). Website: www.abwak.org

FURTHER NEWS OF THE BLUE-THROATED MACAW

by David Waugh

Loro Parque Fundación (LPF) has since 1995 supported the Armonía organisation's plans for the recovery of the Critically Endangered Blue-throated Macaw *Ara glaucogularis*, particularly the need to stop the illegal trafficking of this species and to reduce the loss and deterioration of its habitat. As part of the Armonía/LPF conservation programme, an extensive search was made of vast areas of savannah in an attempt to locate more birds. This resulted in a new flock of 70 being discovered on a ranch, which helped raise the total known population to an estimated 350 birds (see News & Views Vol.113, No.4, p.186 (2007)).

Armonía has now succeeded in purchasing the ranch on which this concentration of Blue-throated Macaws live. The 4,254 hectares (approx. 11,000 acres) ranch is in Yacuma Province to the north-west of the city of Trinidad, capital of Beni, in north-east Bolivia. It is a typical example of Blue-throated Macaw habitat, with seasonably inundated savannah and higher ground free from water, which forms islands of palms and other trees. The purchase of the ranch was made possible thanks to donations from the American Bird Conservancy and World Land Trust. It is the first protected area specifically for the Blue-throated Macaw and the programme can now begin to take measures to protect the habitat, which were not previously possible. Habitat restoration studies will be undertaken and experiments with artificial nest designs, along with planning for the long-term sustainability of the programme through ecotourism.

During the 2007-2008 breeding season, 57 nest boxes were put up, 51 in the southern area and six in the north, some of which were sponsored by The Bird Endowment. Only Blue-and-yellow Macaws *A. ararauna* investigated the boxes in the northern area, but four of those in the south were occupied by Blue-throated Macaws, while 24 of the nest boxes were occupied by Blue-and-yellow Macaws and other animal species (see Table 1). Two of the Blue-throated Macaw nests were successful, one produced one chick and the other three, all of which fledged in March.

January-mid-May the principal markets in Cochabamba and Santa Cruz were monitored for parrots. A total of 5,714 of 19 different species were recorded. Thankfully, no Blue-throated Macaws were seen, though there were three Red-fronted Macaws *A. rubrogenys*, a Bolivian endemic and threatened species.

Table 1. Occupancy of nest boxes 2007-2008 breeding season.

Species	No. occupied
Blue-and-yellow Macaw <i>Ara ararauna</i>	24
White-eyed Parakeet <i>Aratinga leucophthalmus</i>	6
Wasp <i>Polistes</i> spp.	5
Blue-throated Macaw <i>Ara glaucogularis</i>	4
Honey Bee <i>Apis mellifera</i>	4
Black-bellied Whistling Duck <i>Dendrocygna autumnalis</i>	3
Cattle Tyrant <i>Machetornis rixosus</i>	1
Muscovy Duck <i>Cairina moschata</i>	1
Total	48

Eleven boxes were unoccupied.

Of all the parrots recorded, 86% were of five species: the Yellow-chevrons (or Canary-winged) Parakeet *Brotoyeris chiriri* 26%, Blue-fronted Amazon *Amazona aestiva* 22%, Green-cheeked Parakeet *Pyrrhura molinae* 17%, Monk (or Quaker) Parakeet *Myiopsitta monachus* 11% and Blue-winged Parrotlet *Forpus xanthopterygius* 10%.

Another important advance was the signing of a formal agreement between LPF/ Armonía, Zoo Fauna Sudamericana (the zoological park of the Municipality of Santa Cruz) and Noel Kempff Mercado Natural History Museum (also in Santa Cruz and affiliated to the Autonomous University Gabriel Moreno). The agreement formalises the initiation of a managed cooperative breeding programme in Bolivia, as part of the international conservation effort for the Blue-throated Macaw, with LPF as International Studbook Keeper and supporting the programme with expertise and funding.

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WORTHY WINNERS

At the recent Council Meeting held at Colchester Zoo, Peter Karsten's account of breeding the European Robin *Erithacus rubecula* (Vol. 114, No. 3, pp.101-117 (2008)) was judged the best/most informative article in the magazine last year and a worthy winner of the D. H. S. Risdon Award. The Dulcie Cooke Award went to Simon Espley for his photos of the Fawn-breasted Waxbill *Estrilda paludicola* (Vol.114, No.4, pp.161-167 (2008)).

FURTHER NOTES ON AN AFRICAN BUNTING

by Neville Brickell

Cabanis's Bunting *Emberiza cabanisi*

Description

Length 15cm-17cm (6in-6¾in). The adult male is shown in the photograph on the following page. Unlike other similar looking African buntings, this species lacks a white stripe below the eye. Sinclair & Ryan (2003) and Hockey, Dean & Ryan (2005) recognised three subspecies. These differ from each other mainly in the shades of streaking and striping on the head, back and mantle, and in size. The former list the northern nominate subspecies *E. c. cabanisi* and two southern subspecies *E. c. orientalis* and *E. c. cognominata*, the latter two formerly and, alternatively still sometimes, known as the Three-streaked Bunting. Clements (2007) recognised only *E. c. cabanisi* and *E. c. orientalis*. *Emberiza c. cabanisi* is larger and is darker on the head and also on the upperparts, the latter being grey with black streaking. Its chin and throat are white. *Emberiza c. orientalis* has an inconspicuous narrow white or whitish stripe down the centre of its crown, which usually broadens at the back of the neck, and has the feathers of the mantle and back chestnut, with sooty-brown centres, grey edges and bluish-grey bases. Only the chin is white. *Emberiza c. cognominata* has a narrow pale greyish stripe down the centre of the crown, greyer upperparts than *E. c. orientalis* and is larger (Hockey, Dean & Ryan, 2005). There is a slight seasonal variation as the fresh plumage becomes worn and fades.

The female is a paler/duller version of the male. Her head and face markings are dark brown (rather than black), her eye stripe has a buffish tinge and is less conspicuous, her throat is tinged buffish and her wing bars are less striking; the centre of her breast may be washed orangish-brown, with the rest of the underparts yellow. The juvenile is in turn a duller, browner version of the female. Its upperparts are pale tawny-brown with blackish streaking and its eye-stripe is also pale tawny-brown; its breast is pale dull yellow with, according to some descriptions, dark brown streaking on the chest and often also on the flanks.

Voice

Song, delivered from a prominent perch, a piercing, sweetly modulated and variable "wee, chidderchidder, chidder, we," "her, ip, ip, ip...her, hee," "sweet-sweet-sweet-sweet," "peetu-peetu-peetu" or a rapid "twi-twi-twi-twi." Call a soft, clear, whistled "turee" (Hockey, Dean & Ryan, 2005). Stevenson & Fanshawe (2002) described the song of *E. c. cabanisi* as a fairly rapidly



Neville Brickell

Male Cabanis's Bunting.

delivered “*swi chi chi chi chi chi*,” while that of *E. c. orientalis* is a much sweeter “*swi sisi swee swee swee swee*.” Both are described as loud and far-carrying.

Distribution

Emberiza c. cabanisi occurs from Sierra Leone and Guinea on the west coast, eastwards across Africa to southern Sudan, the north-east of the Democratic Republic of Congo and north-west Uganda. *Emberiza c. orientalis* occurs from the south-east of the Democratic Republic of Congo and Tanzania to Zambia, Malawi, northern Mozambique and eastern Zimbabwe. *Emberiza c. cognominata* occurs in southern Gabon, the Congo, Angola, the south-west of the Democratic Republic of Congo, western Zambia and north-western Zimbabwe.

Habitat

Miombo (*Brachystegia*) woodland with little or no undergrowth in southern Africa, at the forest edge and bushed and wooded grassland from 300m-2,000m (approx.985ft-6,550ft) in East Africa and wooded, savannah in West Africa.

Behaviour

Forages on paths, at roadsides and on patches of open ground, particularly those on poorly drained soil. It is usually solitary or in pairs, or may form

small flocks with other small birds, feeding on the ground, in the non-breeding season.

Food

Eats seed and grain, including millet and rice, and insects including beetles and grasshoppers, the remains of which were among the stomach contents of specimens collected in Nigeria. A captive pair belonging to Ken Arnold, formerly of Zimbabwe, then residing in KwaZulu-Natal, was fed a finch seed mixture and mealworms, along with livefood recorded in the wild, including the Common Green Mantis *Sphodromantis gastrica* and crickets, from which the legs were removed by the parents before they were fed to the nestlings between day seven and day II, after which seed was offered. Chickweed, thistle and dandelion leaves were also offered, plus a softfood with the addition of hard-boiled egg. The birds were also provided with finely crushed cuttlefish bone.

Our Feeding Record Cards show that this species has a liking for three indigenous grasses, namely: Natal Red-top *Melinis repens*, Guinea Grass *Panicum maximum* and Natal Panic *P. natalense*, as well as livefood collected from the wild, along with mealworms, when it is breeding.

Breeding

Nigeria and Cameroon, June-September; Central African Republic, February-May; Democratic Republic of Congo and Zambia, March; Angola, September-January; Malawi, October-November; Zimbabwe, September-March (30 out of 44 records October-November).

Nest construction is undertaken by the female alone, with the male in constant attendance, including following her on nesting material collecting trips. The nest is usually 1m-2m (approx. 3ft 3in-6ft 6in) above the ground but can be up to 5m (approx. 16ft) above the ground. It is usually built in a multiple-twiggged fork of a small tree or bush and screened by leafy foliage. In Zimbabwe a Mufuti *Brachystegia boehmii*, Munondo *Julbernardia globiflora* or Camels-foot *Piliostigma thonningii* is frequently chosen. A pair built in a bunch of plantains in full view of Bate's house in southern Cameroon. He found the birds so shy that they were seldom seen, so it came as a surprise to him that they chose such an exposed site. Bannerman (1953) also mentioned a nest in an exposed situation in a yam vine in southern Nigeria.

Bannerman (1953) described the nest as "shallow and loosely made" but Hockey, Dean & Ryan (2005) described it as a "deep, almost thrush-like cup" made of roots, twigs, grass and weed stems (often with flowers and leaves attached) and dry and skeletonised leaves. It is lined with soft, fine grass and rootlets. The outside of the nest measures up to about 110mm in

diameter, with the cup about 50mm in diameter and 30mm deep. The nest is about 60mm-80mm high.

One to three eggs may be laid, but the usual clutch consists of two eggs, which measure on average about 20.2mm x 14.6mm. They are white or pale greenish blue, with large and irregular fine twirling lines, short wavy pencillings, hair lines and blotches coloured brown and grey, often in a ring around the thick end. The incubation period is 12-14 days. A nestling period of 14-16 days has been recorded in captivity. On vacating the nest the fledglings are fed by the male for a further eight to 10 days. An attempt to consume dry seed was observed after 12 days of having left the nest. Cabanis's Bunting is parasited by Klaas's Cuckoo *Chrysococcyx klaas*.

Acknowledgements

Thanks to aviculturist Ken Arnold for his contribution to the above information.

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BLACK-AND-WHITE LAUGHINGTHRUSH

Dave Coles remembers the Black-and-white Laughingthrushes *Garrulax bicolor*, then called Sumatran Jay Thrushes or Sumatran Laughingthrushes *G. leucolophus bicolor*, living in one of Raymond Sawyer's aviaries at Cobham, Surrey (see Vol.114, No.3, p.132 (2008)). The pair was, Dave wrote, there when he left in 1987. So far as he is aware, the pair never bred and came, he believes, from Rex Merritt.

THE CHALLENGE OF KEEPING KINGFISHERS

by Gary Bralsford

Over the past 25 years, I have kept many foreign birds. Softbills have been my first love, my favourites being the kingfishers, rollers and bee-eaters. Of these, the kingfishers are to me the real beauties and have presented the greatest challenge to my birdkeeping skills.

I bought my first kingfisher, a Grey-headed *Halcyon leucocephala*, from a dealer in Doncaster named Terry Merrick, who sadly is no longer in the hobby. Its staple diet was mealworms, crickets and locusts. At the time, in the early 1980s, I also had a pond with a thriving goldfish population and the fry were eagerly consumed by the kingfisher. My bird was a male (which in my experience has a more prominent grey head) and as I could not get a female to pair it with, after about 18 months I sold it to someone who already had three Grey-headed Kingfishers.

This species has a wide range in Africa and is also found on the Red Sea coast of the southern Arabian Peninsula. It inhabits woodland and bush, usually near water. Some populations are migratory, breeding in one part of Africa and spending the non-breeding season elsewhere in Africa. The Grey-headed Kingfisher feeds on a wide variety of prey, including insects (mainly grasshoppers, locusts and crickets), lizards, small mammals such as mice and more rarely takes frogs and small fish.

I then went on to keep the slightly larger Blue-breasted Kingfisher *H. malimbica*. It is a fantastic bird to keep, being both a colourful and an energetic aviary inhabitant. It is found from the Senegambia region of West Africa, south to Cameroon, Angola and Zambia, and eastwards to southern Sudan, western and southern Uganda and right up in the north-west corner of Tanzania. It is primarily a forest kingfisher, that keeps in deep shade below the canopy, but may also be found in dense riverine woodland and in mangroves. Like the Grey-headed species, it feeds mainly on insects, but may also catch frogs, crabs and prawns but not fish. It is said often to nest in an arboreal termite nest, 10m (30ft) or more above the ground, or in a hole in a tree. Up to four, round, smooth, glossy white eggs are laid.

I bought my first Blue-breasted Kingfisher from Mark Peckett of Preston and later bought two more from Pegasus Birds. I found that Blue-breasted Kingfishers were prone to arrive from quarantine with damaged beaks, which was the case with one of the latter, that had a chip out of its upper mandible. All three were quite nervous and whenever I entered their flight would crash against the wire mesh. I therefore put up mini-corrugated sheeting on the inside of the flight to prevent them crashing against the wire and to protect

their beaks.

For about a year, the three would eat only whitebait and sardines, which was a problem in the summer when my wife objected to the smell of the fish, whenever we opened the back door. I had to wean them off fish by slowly introducing minced (ground) beef into their diet. All three got on well together and displayed with their wings outstretched. They were provided with nest logs 2ft (approx. 0.6m) high, with a 4in (10cm) diameter hole 2in (5cm) from the top. However, although I saw plenty of displaying and bill wiping, the three birds which were unsexed (although I suspect males have a more colourful blue breast), made no attempt to nest during the three years I had them.

After years of being without the Blue-breasted Kingfisher, I purchased a pair from Mark Peckett at the end of 2007. I had the two birds DNA sexed and to my surprise and delight, they proved to be a true pair. The pair had been housed in a treble-sized breeding cage for some considerable time. Both birds were in reasonable condition but would, I thought, look better after having moulted. I placed the pair in a 9ft x 4ft x 6ft high (approx. 2.7m x 1.2m x 1.8m high) flight in my birdroom shed.

I provided the pair with a varied diet consisting of minced (ground) beef, strips of beef and pinkie mice, along with morio worms, *Pachnoda* (fruit beetle) grubs, locusts and black crickets. I provided a small earthenware dish of water for bathing. After a few months, the pair looked good, but with room for improvement. I therefore replaced the small earthenware dish with a large, plastic, cat litter tray of water for bathing. I also began using The Birdcare Company product Feather Up, which I put on their minced (ground) beef and strips of meat. Over a period of four months or so their plumage improved and they eventually underwent a complete moult, after which they began to look really good. The moult of this species is the longest I have ever witnessed by any of the birds I have kept.

It is a fantastic sight to see them dive some 3ft (0.9m) or so from the perch into the water with quite a splash, then return to the perch to preen. They often regurgitate pellets and drop them into the water. In my experience, they do not feed everyday. The food may remain untouched one day and then be eaten eagerly the following day.

They have now started to call, usually at night or in the early morning. Their song is a loud whistled series of rising and then falling notes, which usually finishes on the same tone as the opening note. They also have a loud alarm call, but neither is loud enough to upset the neighbours. They have access to a large nest box, which they have started to roost in. I am hoping that the pair will breed this year. However, it would be reassuring to have one or two spare birds as back-up.

I am in contact with Bengt Larsson in Sweden, who has several males and a female. If possible, I would like to obtain one of his spare males, which he has offered me as part of an exchange deal.

I was told that Barcelona Zoo in Spain has this species on show, but never saw any when I visited there recently. Quite large numbers were imported a few years ago. I know that Borgstein in the Netherlands often had this species on his list. Nowadays, however, there are not many Blue-breasted Kingfishers about.

The White-collared (or Collared) Kingfisher *H. (Todiramphus) chloris* is another species I kept in the past and have again now. I first kept this species in the early 1980s. I bought a pair from Dave Campbell at the National Exhibition of Cage & Aviary Birds. I housed the pair in a 6ft x 6ft x 6ft (approx. 1.8m x 1.8m x 1.8m) flight, but unfortunately after just a few weeks I lost the male. As the chance of getting another male was slim, I sold the female to a dealer.

It was many years before I again got the opportunity to keep this species. In late 2006, I learned that the White-collared Kingfisher was being bred at Chester Zoo and one or two were being allowed to go to private breeders. A friend of mine, Safter Ikbai, obtained a young true pair from the zoo in part exchange for some turacos. I told him that if ever he wanted to sell them, I would love to have them. The chance came in August 2008, when Safter called me and said that if I still wanted them, they were mine. We arranged a part exchange deal and I returned home with them and set about getting them into peak condition.

I put Feather Up on their food. They took about six weeks to complete their full moult, which was a lot quicker than the Blue-breasted Kingfishers took to complete their moult. I keep the pair in an 8ft x 4ft x 6ft (approx. 2.4m x 1.2m x 1.8m) flight. Both birds have settled in well, but are not as steady as the Blue-breasted Kingfishers. They remain quite flighty whenever I enter their flight. I have put up a nest box which the two birds regularly go into. At the time of writing (December 2008), the male is feeding the female, which is exciting to see. He is a deeper blue on the head and upperparts than the female, who is more greenish.

This species cannot, I learned, be trusted with other birds, even those considerably larger than itself. On a recent tour of the bird collection at Chester Zoo, I was told that they had lost pheasants and other birds with head injuries, and wondered who was the culprit. A careful watch was kept and a White-collared Kingfisher was seen diving from a perch "like an exocet missile" and killing a dove in one swoop. After this they were removed and housed on their own. It was then that they went on to breed. I was told that so long as they are in tiptop condition, they will breed at

anytime of the year.

The White-collared Kingfisher has an enormous range, stretching from the coast of Eritrea in north-east Africa, across to India, south China, Australia and the south-west Pacific. Clements (2007) lists 49 subspecies, most of which are confined to islands. This kingfisher is associated mainly with tidal habitats, from mangroves and mudflats to sandy beaches and coral reefs and may be seen around fishing villages. In some areas though, such as on the Indonesian island of Sumatra, it may move far inland into open woodland and cultivation. Its food in the wild can vary from crustaceans caught on the sand or mud, to insects, worms, frogs, lizards and even small snakes. The White-collared Kingfisher excavates its own nest hole in a tree trunk, ant or termite nest.

A few years ago a friend of mine and fellow Avicultural Society member Richard Green, obtained a pair of Woodland Kingfishers *H. senegalensis* from Mark Peckett. When he got them back to Doncaster, he put them in his tropical house, in which he has a fantastic set up, but within a few hours disaster struck, when one of the pair drowned while bathing in the waterfall and rock pool. Their plumage had become dry and the unfortunate bird's feathers became waterlogged.

Richard managed to get a replacement and when the two birds were DNA sexed, they proved to be a true pair. A new enclosure was built measuring 12ft x 12ft x 7ft high (approx. 3.9m x 3.9m x 2.1m high), into which the pair was released. It has a stream and a pump, so that there is constant running water. The pair love this and use the stream to bathe in.

An array of nest boxes have been put up, some with holes in them and some with slots. They are fixed at an angle of forty-five degrees, to replicate the broken bough of a tree. Nothing happened for the first couple of years, but this changed in 2008. The pair looked immaculate and all of a sudden became very vocal and began displaying. There was a lot of wing flicking and bill wiping going on. In August the female was sitting in a nest box about 4ft (approx. 1.2m) above the ground. On inspection she was found to be sitting on three white eggs, one of which hatched after an incubation period of 16 days. Richard fed the young kingfisher on mealworms, morio worms, lance fish and crickets. It lived for 14 days. By then it was quite large, with pin-feathers covering its body and a lot of other feathers already in place. Richard blamed himself for the loss, because he felt he had failed to provide enough livefood. Kingfishers have quite a large gape and, I suspect, the young are capable of swallowing larger livefood from about five days old or so. Hopefully, Richard will be successful this year with his Woodland Kingfishers, a species first bred in the UK at Winged World in 1971.

This kingfisher inhabits woodland and savannah throughout much of

Africa, from the Senegambia region of West Africa across to Ethiopia and southwards all the way down into South Africa. Like other *Halcyon* spp., it eats mainly insects, but has also been recorded taking small fish, small birds such as the Bronze Mannikin *Lonchura cucullata* and quelea and barbet chicks (Hockey et al. 2005). Some populations, like those of the Grey-headed species, are intra-Africa migrants, that breed in one part of Africa and then spend the non-breeding season elsewhere. Both migrate at night.

The African Pygmy Kingfisher *Ispidina (Ceyx) picta* is another species I have been lucky enough to keep. I bought a pair from an import station in Lincolnshire. I housed the pair in a 6ft (approx. 1.8m) long block of cages. The pair lived on mealworms, small crickets and locusts, waxworms, casters and small earthworms. The pair refused to eat mince or any other meat and would take nothing but livefood. Both were very active and a joy to keep, but the weekly cost of the livefood made them expensive to feed.

Many years ago, the Bird Box at Wakefield Garden Centre, which was run by a man named Bill and his wife Sue, kept a pair in a small, covered outside flight. Bill provided the pair with an artificial bank and began to feed the pair on tadpoles at various stages of development. Shortly afterwards the pair began to excavate a nest chamber in the bank. Unfortunately, however, the chamber kept collapsing and after a couple of months trying to breed them, Bill eventually sold them.

I have been told that an aviculturist in the Netherlands has perfected the breeding of this species. He is said to have bred five young in 2007 and I am still trying to find out how he did with his Pygmy Kingfishers 2008.

The African Pygmy Kingfisher, which measures little more than 11cm (4½in) in length and has a similar distribution to the Woodland species, inhabits mostly woodland and savannah, often far from water, and feeds mainly on insects. Some populations are migratory. They are thought to migrate mostly at night and many (mostly juvenile birds) perish as a result of colliding with buildings in urban areas. The same is true of many migrating Grey-headed and Woodland Kingfishers (Hockey et al. 2005).

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*Gary Bralsford is a UK member who lives in south Yorkshire. He was the first person in the UK to breed the Chestnut-backed Thrush *Zoothera dohertyi*.*

BOOK REVIEW

THE WISDOM OF BIRDS

Prof. Tim Birkhead has written a history of ornithology that is a pleasure to read. On receiving this large (433 page) volume I wondered how I would find time to read it. Like a good novel though, once I started reading it I could not put it down. It is rare to enjoy a book to the extent that you rush back home from a day's birding in order to read more. I first met Tim over 30 years ago at a job interview, at which he was the successful applicant and went on to begin his distinguished career at Sheffield University. With our shared interests in birds and behaviour, especially the sexual behaviour of birds, it was perhaps not unsurprising that we later collaborated on writing an academic paper on the copulation of the Greater Vasa Parrot, which resulted from my observations of captive birds at Chester Zoo.

The Wisdom of Birds An Illustrated History of Ornithology evolved from a concept Tim developed several years ago, which aimed to document the central role of bird keeping to the science of ornithology. In the first chapter Tim discusses the early growth of ornithology and makes a strong case for the approach taken by John Ray in *The Wisdom of God Manifested in the Works of Creation* published in 1691. Ray questioned how birds are designed to be equipped to fit their place in nature. This was considered by Ray to indicate design by God. It was his way of thinking about what we now call adaptations, that set the stage for Darwin and others to follow and produce the theory of evolution by natural selection.

The following chapter is on birds' eggs and outlines the development of our knowledge of fertilisation, sperm storage and embryology. Eggs of domestic chickens and pigeons provided most of this body of knowledge. In describing how hen birds paired to vasectomised males may continue to produce fertile eggs, this chapter helps set the scene for a later chapter on promiscuity and infidelity in birds.

The importance of bird keeping to the development of ornithology is not a subject that has been fully documented or appreciated - doubtless because keeping birds in captivity is considered, at best, irrelevant by many modern field ornithologists and birdwatchers. This book includes in its history of ornithology the important role played by the observations of bird trappers and bird keepers. The close observation of birds and the incentive to breed them in captivity to produce birds that are more attractive to bird fanciers in looks, behaviour and/or song, have helped unravel many aspects of bird biology.

The chapter on instinct and intelligence covers the ground breaking

work of Konrad Lorenz, Niko Tinbergen, Bill Thorpe and others in the development of behaviour in individual birds. Much of this research and more recent work has and continues to be conducted on captive birds. Our knowledge of the complex learning ability of parrots, for example, results from the recent research by Irene Pepperberg on Alex, her pet African Grey Parrot.

Over 400 years ago bird trappers in Italy discovered that keeping birds in the dark affected their annual cycles and, as a result, they could be induced to sing at times they would have normally been silent. In the 1920s this same 'trick' was used by a bird breeder in Germany to induce Nightingales to sing at the same time that his canaries had chicks in the nest, with the result that the latter learned the Nightingale's song. Thus a strain of canaries that sang like Nightingales was produced. Nowadays, of course, we have sound recordings that make such 'tricks' unnecessary. Such observations formed the basis of later scientific investigations and experiments that have led to our present understanding of the role of light in controlling avian breeding cycles. Similarly the observations by European bird keepers of seasonal restlessness, or *Zugunruhe* as it is called in Germany, by captive migratory birds, set the scene for work by modern scientists on the physiology of migration. Much of this recent research in both the USA and Europe, has been and could only have been conducted on captive birds.

Chapters follow on the history of our understanding of territoriality in birds and of bird song. Most of the work on the function of territorial behaviour, as would be expected, is field based, though some of the earlier observations of territorial behaviour linked with song were made by bird catchers, who had direct practical experience of wild birds. The chapter on bird song begins with an account of the work on captive Bullfinches by a hero of mine, the German bird keeper and ornithologist Jürgen Nicolai. My own PhD work was on Bullfinches and these remain a personal favourite of mine. Again most of our knowledge of the development of bird song of individual birds has come from experiments with captive birds, with the work of Bill Thorpe and of Peter Marler on Chaffinches, being of especial significance.

I am disappointed that no mention is made of Klaus Immelmann who integrated field and aviary studies. Immelmann's books on Australian parakeets and finches, which I bought as a teenager, opened new paths of interest for me.

Sex has a chapter of its own which is devoted mainly to our knowledge of how the sex of an individual bird is determined. In aviculture we often hear of birds that have changed sex or have had experience of this with some of our own birds. Again many cited observations of this are of captive birds. Most often it is a female that later takes on the appearance of a male and the

physiological basis of this is explained.

Infidelity is the subject of the penultimate chapter. Many, if not most birds, are promiscuous and indulge in extra-pair copulations - although the Bullfinch appears to break that pattern and practises true monogamy. Male Bullfinches possess comparatively small testes, little in the way of a cloacal protuberance and, compared to other birds, produce very few sperm. From this it is deduced that evolution has not selected for big testes in male Bullfinches, because the females choose not to 'play away.'

Too much sex is bad for you - or so it would appear from the final chapter. Birds that reproduce quickly and often and have large broods also have short life spans. We learn that human eunuchs live on average 10-12 years longer than other men. Perhaps abstinence from sex does make the heart grow stronger!

This chapter goes on to explain the refutation of theories of group selection in the regulation of animal numbers and the importance of natural selection on individuals through lifetime reproductive success. Tim Birkhead finishes by returning to infidelity and questioning the evolutionary advantages that accrue to females that pair with only one male yet continue to seek copulations with other males. Perhaps the exceptions may prove the rule and further studies of Bullfinches take us towards the answer.

Prof. Birkhead clearly enjoys his birds and his science and, a combination of clear thinking, good writing, scholarship and an extensive knowledge of ornithological literature, coupled with his own field and bird keeping experience, make his book a really good read. It is illustrated with and enhanced by many beautiful colour reproductions, mostly from old works, coupled with some fascinating anecdotes. I really enjoyed this book and can recommend it to those with an inclination to learn more about the biology of birds.

As much about birds as it is about the history of ornithology, *The Wisdom of Birds An Illustrated History of Ornithology* (ISBN 978 0 7475 9256 3) by Tim Birkhead, is a 433-page hardback with many colour illustrations. It is published by Bloomsbury, London, New York and Berlin. Price £25.00.

Roger Wilkinson

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EDITOR'S FINAL ISSUE

Following publication of the February 2009 issue of *Australian Aviculture*, journal of The Avicultural Society of Australia Inc. (Website: www.birds.org.au), Graeme Hyde retired after having edited and produced 395 consecutive issues over a period of 33 years. Graeme joined The Avicultural Society of Australia Inc. in 1954 at 19 years of age.

A REMARKABLE ACHIEVEMENT

Having begun in 1999 with just one pair of Pekin Robins *Leiothrix lutea*, Peter Karsten in Canada now has eight pairs and by the end of the 2008 breeding season had bred to independence 114 young, which is a remarkable achievement. Peter's book *Pekin Robins and Small Softbills* was reviewed in Vol.113, No.4, pp.182-183 (2007). It is published by Hancock House Publishers, Surrey, B.C., Canada, and is distributed by them. Price Canada \$49.95 (subject to verification with the publisher at time of order). In case of difficulty contact: Lorraine Christian, Sales Promotion, Hancock House Publishers Ltd. Tel:800-938-1114/Fax:800-938-2262 (in North America only)/Website:www.hancockhouse.com Alternatively, you can contact Peter - Website:www.pekinrobin.ca /E-mail:silvpine@island.net - who will forward enquiries and is happy to answer questions on keeping and breeding Pekin Robins.

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DAVID SNOW

David Snow died on February 4th 2009, aged 84, less than a year after the death of his friend and former colleague Derek Goodwin, whose obituary was published in Vol.114, No.1, pp.45-47 (2008).

David Snow's book *The Cotingas*, published in 1982, will be familiar to many aviculturists interested in this group of birds. He served from 1957-1961 as Resident Naturalist for the New York Zoological Society at its tropical field station run by William Beebe on the island of Trinidad, then from 1963-1964 was Director of the Charles Darwin Research Station on the Galapagos Islands. In 1964, David Snow returned to the UK, his wife Barbara having travelled ahead for the birth of their second son. He was appointed Director of Research at the British Trust for Ornithology (BTO) that year and held the post until 1968, when he became Senior Principal Scientific Officer in the birdroom of The Natural History Museum at Tring. He retired from the museum in 1984. He edited *Ibis* for a number of years and was Editor of the Concise Edition of *The Birds of the Western Palearctic*.

He was elected President of the British Ornithologists' Union in 1982 and awarded its Godman-Salvin Medal for outstanding contributions to ornithology. The American Ornithologists' Union had preceded this with its Brewster Medal in 1972.



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